hp WBEM solutions

hp technical data sheet

HP-VMS LAN Provider – CIM Provider for Ethernet LAN interfaces.

provider overview

description

The HP-VMS LAN Provider is a CIM Provider for Ethernet-based LAN interfaces. The Provider provides information on LAN interfaces in the system. The provider shows only Ethernet-based LAN links and shows each of the Ethernet links as

- Available Ethernet port (HPVMS_EthernetPort; sub-class of HP_EthernetPort, in turn sub class of CIM_EthernetPort)
- Ethernet port statistics (HPVMS_EthernetStatistics; subclass of HP_EthernetStatistics in turn sub class of CIM_EthernetPortStatistic)
- LAN protocol endpoint (HPVMS_EthernetLANEndpoint; sub-class of HP_EthernetLANEndpoint in turn sub class of CIM_LANEndpoint).

The Provider also supports

- Association between HPVMS_EthernetPort and HPVMS_EthernetLANEndpoint, allowing a correlation between an Ethernet port and a LAN protocol endpoint. This association class name is HPVMS_EthernetPortImplementsLANEndpoint; sub-class of CIM_PortImplementsEndpoint.
- Association between HPVMS_EthernetPort and HPVMS_EthernetStatistics, allowing a correlation between an Ethernet port and its statistics. This association class name is HPVMS_EthernetPortStatisticalData; sub-class of HP_EthernetPortStatisticalData which in turn is sub class of CIM_ElementStatisticalData)

Client applications can use the LAN Provider to determine all Ethernet LAN links available in the system. The Internet Protocol (IP) Provider, which supports an association between IP and LAN Endpoints, can be used to determine which LAN interface is associated with a given IP address. The IP Provider is packaged with the HP WBEM services for HP-VMS.

The LAN Provider instruments the CIM_EthernetPort, CIM_LANEndpoint, CIM_EthernetPortStatistic, CIM_PortImplementsEndpoint, CIM_ElementStatisticalData classes from CIM Schema v2.7.

This Provider is for use by clients as part of a basic understanding of the identity of the managed system on which it is running (typically a server).

requirements

The Provider requires HP WBEM Services for HP-VMS.

release information

Initial release with HP WBEM Services for HP-VMS.

- HP I64VMS WBEMPROVIDERS V1.7-16 (May 2009)
- HP I64VMS WBEMPROVIDERS V2.0-4 (June 2010)
- HP I64VMS WBEMPROVIDERS V2.1-4 (August 2010)
- HP I64VMS WBEMPROVIDERS V2.2-3 (February 2011)

supported managed resources

Managed systems running HP WBEM Services for HP-VMS. This provider supports Ethernet-based LAN interfaces only.

setting up this provider

installing this provider

The installation of HP WBEM Providers will set up this provider. Ensure HP WBEM Services is already installed.

On installation, executable binaries, configuration files and MOF definition and registration files will be available in their respective directory, as follows:

- The CIM MOF file, containing the definitions of the HP-specific MOF classes, (namely HPVMSEthernetPort.mof, HPVMSLANEndpoint.mof, HPVMSPortImplementsEndpoint.mof, HPVMSLANProviderModule.mof &HPVMSEthernetPortStatistics.mof) will be available in SYS$COMMON:[WBEMPROVIDERS.MOF]. This directory will also include the provider registration file, namely HPVMSLANProviderModuleRegister.mof. Note: All the HP-specific MOF classes will be registered under the "root/cimv2" namespace.

- The SYS$SPECIFIC:[WBEMPROVIDERS] directory will contain the configuration files of the WBEM Providers Product.

- The WBEM Services SYS$SPECIFIC:[WBEM_SERVICES]CIMSERVER_STARTUP.LOG log file will contain logs generated during the execution of this provider. By editing the "Severity" property in the SYS$SPECIFIC:[WBEMPROVIDERS]FMLOGGERCONFIG.TXT file different levels of messages in the SYS$SPECIFIC:[WBEM_SERVICES]CIMSERVER.LOG can be generated. The valid values are TRACE, DEBUG, INFORMATIONAL, WARNING, ERROR, CRITICAL, STOPLOGGING.

The HP-VMS LAN Provider is registered to support the "root/cimv2" namespace as an instance provider.

using this provider

schema supported by this provider

This Provider supports the

- HPVMS_EthernetPort; sub-class of HP_EthernetPort, in turn sub class of CIM_EthernetPort
- HPVMS_EthernetStatistics; subclass of HP_EthernetStatistics in turn `sub class of` CIM_EthernetPortStatistic
- HPVMS_EthernetLANEndpoint; sub-class of HP_EthernetLANEndpoint in turn sub class of CIM_LANEndpoint
- (association) HPVMS_EthernetPortImplementsLANEndpoint; sub-class of CIM_PortImplementsEndpoint
- (association) HPVMS_EthernetPortStatisticalData; sub-class of HP_EthernetPortStatisticalData which in turn is sub class of CIM_ElementStatisticalData

Tables 1 through 5 describe the property names (including type and unit), the property inheritance (indicating which class or superclass defines the property), and the property's value and data source for the HPVMS_EthernetPort, HPVMS_EthernetStatistics, HPVMS_EthernetLANEndpoint, HPVMS_EthernetPortImplementsEndpoint and HPVMS_EthernetPortStatisticalData subclasses respectively. Table 6 describes the methods supported by the provider for each of the schema classes. Table 7 and 8 describes the association class HPVMS_EthernetPortImplementsLANEndpoint and HPVMS_EthernetPortStatisticalData.

table 1: HPVMS_EthernetPort properties

Property name	***property inheritance***	***property value (and data source)***
string Caption	Inherited from CIM_ManagedElement	HP-VMS: Description of an interface as shown by `lancp>show configuration`
string Description	Inherited from CIM_ManagedElement	HP-VMS: Description of an interface as shown by `lancp>show configuration`
uint16[] OperationalStatus	Inherited from CIM_ManagedSystemElement	HP-VMS: 2 (indicating "OK") for operational interface and 10 (indicating "Stopped") for non-operational interface
string Name	Inherited from CIM_ManagedSystemElement	HP-VMS: Name of a driver for the LAN interface. (e.g. igelan or iether etc.)

string SystemCreationClassName [Key]	Inherited from CIM_LogicalDevice	HP-VMS: Fixed string "CIM_UnitaryComputerSystem"
string SystemName [Key]	Inherited from CIM_LogicalDevice	HP-VMS: Fully qualified host name if available from the `gethostbyname()` system call; otherwise it returns the hostname from the `gethostname()` system call
string CreationClassName [Key]	Inherited from CIM_LogicalDevice	HP-VMS: Fixed string "CIM_LogicalDevice"
string DeviceID [Key]	Inherited from CIM_LogicalDevice	HP-VMS: Example: "EIA0"
uint64 Speed	Inherited from CIM_LogicalPort	HP-VMS: Current set speed in bits per second
uint64 MaxSpeed	Inherited from CIM_LogicalPort	HP-VMS: Maximum supported speed of the interface in bits per second
Boolean FullDuplex	Inherited from CIM_NetworkPort	HP-VMS: "TRUE" if interface is operating in Full Duplex mode, "FALSE" otherwise
uint64 ActiveMaximumTransmissionUnit	Inherited from CIM_NetworkPort	HP-VMS: Current MTU in bytes
uint64 SupportedMaximumTranmissionUnit	Inherited from CIM_NetworkPort	HP-VMS: Maximum MTU in bytes that can be supported
string PermanentAddress	Inherited from CIM_NetworkPort	HP-VMS: MAC address of the LAN interface as factory set on the NIC
string[] NetworkAddresses	Inherited from CIM_NetworkPort	HP-VMS: Current MAC address set on the NIC. Only one address is returned
uint32 MaxDataSize	Inherited from CIM_EthernetPort	HP-VMS: Current MTU (Maximum Transmission Unit) size in bytes

table 2: HPVMS_EthernetStatistics

property name	***property inheritance***	***property value (and data source)***
String InstanceID [Key]	Inherited from CIM_StatisticalData.	HP-VMS: Ex:- "EIA0"
Unit16 BytesTransmitted	Inherited from CIM_NetworkPortStatistics.	HP-VMS: counters shown by lancp>show device/counters
Unit16 BytesReceived	Inherited from CIM_NetworkPortStatistics	HP-VMS: counters shown by lancp>show device/counters
uint64 PacketsTransmitted	Inherited from CIM_NetworkPortStatistics	HP-VMS: counters shown by lancp>show device/counters
uint64 PacketsReceived	Inherited from CIM_NetworkPortStatistics	HP-VMS: counters shown by lancp>show device/counters
uint32 AlignmentErrors	Inherited from CIM_EthernetPortStatistics	HP-VMS: counters shown by lancp>show device/counters
uint32 FCSErrors	Inherited from CIM_EthernetPortStatistics	HP-VMS: counters shown by lancp>show device/counters
uint32 SingleCollisionFrames	Inherited from CIM_EthernetPortStatistics	HP-VMS: counters shown by lancp>show device/counters
uint32 MultipleCollisionFrames	Inherited from CIM_EthernetPortStatistics	HP-VMS: counters shown by lancp>show

		device/counters
uint32 SQETestErrors	Inherited from CIM_EthernetPortStatistics	HP-VMS: counters shown by lancp>show device/counters
uint32 DeferredTransmissions	Inherited from CIM_EthernetPortStatistics	HP-VMS: counters shown by lancp>show device/counters
uint32 LateCollisions	Inherited from CIM_EthernetPortStatistics	HP-VMS: counters shown by lancp>show device/counters
uint32 ExcessiveCollisions	Inherited from CIM_EthernetPortStatistics	HP-VMS: counters shown by lancp>show device/counters
uint32 InternalMACTransmitErrors	Inherited from CIM_EthernetPortStatistics	HP-VMS: counters shown by lancp>show device/counters
uint32 InternalMACReceiveErrors	Inherited from CIM_EthernetPortStatistics	HP-VMS: counters shown by lancp>show device/counters
uint32 CarrierSenseErrors	Inherited from CIM_EthernetPortStatistics	HP-VMS: counters shown by lancp>show device/counters
uint32 FrameTooLongs	Inherited from CIM_EthernetPortStatistics	HP-VMS: counters shown by lancp>show device/counters

table 3: HPVMS_EthernetLANEndpoint properties

property name	***property inheritance***	***property value (and data source)***
string Caption	Inherited from CIM_ManagedElement.	HP-VMS: Description of an corresponding interface as shown by `lancp> show configuration`
string Description	Inherited from CIM_ManagedElement.	HP-VMS: Description of an corresponding interface as shown by `lancp> show configuration`
Uint16[] OperationalStatus	Inherited from CIM_ManagedSystemElement.	HP-VMS: 2 (indicating "OK") for operational interface and 10 (indicating "Stopped") for non-operational interface
string SystemCreationClassName [Key]	Inherited from CIM_ServiceAccessPoint	HP-VMS: Fixed string "CIM_UnitaryComputerSystem"
string SystemName [Key]	Inherited from CIM_ServiceAccessPoint	HP-VMS: Fully qualified host name if available from the `gethostbyname()` system call; otherwise it returns the hostname from the `gethostname()` system call
string Name [Key]	Inherited from CIM_ServiceAccessPoint	HP-VMS: device name (e.g. EIA0)
string CreationClassName [Key]	Inherited from CIM_ServiceAccessPoint.	HP-VMS: Fixed string "HPVMS_EthernetLANEndpoint".
Uint16 ProtocolType	Inherited from CIM_ProtocolEndpoint.	HP-VMS: 14 for Ethernet (only Ethernet links are supported)
string MACAddress	Inherited from CIM_LANEndpoint	HP-VMS: Current set MAC address on the NIC
Uint16 LANType	Inherited from CIM_LANEndpoint	An indication of the kind of technology used on the LAN. ValueMap { "0", "1", "2", "3", "4" }, Values { "Unknown", "Other", "Ethernet", "TokenRing", "FDDI"

table 4: HPVMS_EthernetPortImplementsLANEndpoint properties.

property name	*property inheritance*	*property value (and data source)*
HPVMS_EthernetPort REF Antecedent	Inherited from CIM_Dependency, overridden by CIM_DeviceSAPImplementation, overridden by CIM_PortImplementsEndpoint, overridden by HPVMS_EthernetPortImplementsLANEndpoint.	HP-VMS: Within the reference property: CreationClassName returns "CIM_LogicalDevice". DeviceID returns the Interface Name (e.g. "EIA0").
HPVMS_EthernetLANEndpoint REF Dependent	Inherited from CIM_Dependency, overridden by CIM_DeviceSAPImplementation, overridden by CIM_PortImplementsEndpoint, overridden by HPVMS_EthernetPortImplementsLANEndpoint.	HP-VMS: Within the reference property: CreationClassName returns "HPVMS_EthernetLANEndpoint". Name returns the interface name (For example, "EIA0").

table 5: HPVMS_EthernetPortStatisticalData properties.

property name	*property inheritance*	*property value (and data source)*
HPVMS_EthernetPort REF ManagedElement	Inherited from CIM_ElementStatisticalData, overridden by HP_EthernetPortStatisticalData.	HP-VMS: Within the reference property: CreationClassName returns "CIM_LogicalDevice". DeviceID returns the Interface Name (e.g. "EIA0").
HPVMS_*EthernetStatistics* REF Stats	Inherited from CIM_ElementStatisticalData, overridden by HP_EthernetPortStatisticalData.	HP-VMS: Within the reference property: CreationClassName returns "HPVMS_EthernetStatistics". Name returns the interface name (For example, "EIA0").

table 6: intrinsic methods for HPVMS_EthernetPort, HPVMS_EthernetLANEndpoint and HPVMS_EthernetPortImplementsLANEndpoint

Method name	*description*	*exceptions thrown*
enumerateInstances	Returns all instances of class with values of supported properties. (See the preceding tables.)	CIM_ERR_NOT_FOUND if any internal error occurs.
enumerateInstanceNames	Returns object path of all instances of class.	CIM_ERR_NOT_FOUND if any internal error occurs.
getInstance	Returns an instance that matches the keys with values of supported properties. (See tables above.)	CIM_ERR_INVALID_PARAMETER if wrong class for a key or wrong keys. CIM_ERR_NOT_FOUND if the instance is not found.
modifyInstance	Does nothing.	CIM_ERR_NOT_SUPPORTED
deleteInstance	Does nothing.	CIM_ERR_NOT_SUPPORTED
createInstance	Does nothing.	CIM_ERR_NOT_SUPPORTED
initialize	Does nothing.	None.
terminate	Does nothing.	None

table 7: HPVMS_EthernetPortImplementsLANEndpoint association

Name	*References*	*description*	*how association is used*
HPVMS_EthernetPortImplementsLANEndpoint	HPVMS_EthernetPort HPVMS_EthernetLANEndpoint	Instances of this association exist for each Ethernet LAN interface. They can be used to associate an Ethernet port with a corresponding LAN Endpoint.	Clients can use this association to relate an Ethernet port to a particular LAN interface.

table 8: HPVMS_EthernetPortStatisticalData association

Name	*References*	*description*	*how association is used*
HPVMS_EthernetPortStatisticalData	HPVMS_EthernetPort HPVMS_*EthernetStatistics*	Instances of this association exist for each Ethernet LAN interface. It is an association that relates a ManagedElement to its StatisticalData.	Clients can use this association to relate an Ethernet port to its statisticalData.

indications generated by this provider This Provider does not currently generate any indications.

Links to more information

- **Additional provider documentation**
  There is no documentation for this provider beyond this information.
  See man pages for information on the various commands and system calls noted in the descriptions above.
- **WBEM information**
  For a CIM tutorial, go to http://www.dmtf.org/education and look for CIM Tutorial.
  For information about HP WBEM Services for HP-VMS, see http://docs.hp.com in Network and Systems Management.
- **Client information**
  HP Systems Insight Manager (SIM) is a consumer of this provider. HP SIM's property page component will display LAN Provider properties.
  See the HP SIM home page http://www.hp.com/go/hpsim for details.

For additional information on HP products and services, visit us at http://www.hp.com.

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02/2011